naturally occurring variant of an OPGbp is found on p. 15, lines 9-11 of the specification. Support for a soluble form of an OPGbp is found at p. 14, line 26 to p. 15, line 2 of the specification. Support for an OPGbp fragment is found at is found at p. 14, lines 11-26 of the specification. It is submitted that the amendments do not introduce new matter or raise new issues requiring further search and/or consideration. Entry of the amendments is respectfully requested.

New claims ~~48-58~~ 47-57 have been added and are fully supported by the specification. Support for Claim ~~48~~ 47 is found at p. 17, lines 17-19 of the specification. Support for Claim ~~49~~ 48 is similar to that for Claim 37 and is also found at p. 17, lines 19-22, of the specification. Claims ~~50-58~~ 49-57 are dependent claims which generally correspond to the subject matter of pending Claims 38-~~47~~ 46. It is believed that the new claims do not introduce new matter or raise new issues requiring further search and/or consideration. Entry of the new claims is respectfully requested.

Supplementary Information Disclosure

Applicant submits herewith a Supplementary Information Disclosure and respectfully requests that the Examiner consider and make of record the references cited therein.

Rejections under 35 U.S.C. 112

Claims 37-47 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in a manner that reasonably conveyed that the inventor had possession of the invention as of the filing date of the application. The Examiner alleges that the disclosure describes "osteoprotegerin binding proteins" in functional terms, that is, the proteins are described in terms of their function of binding OPG, and that this fails to describe the genus of antibodies specific for such proteins (citing the Commissioner's Revised Interim Guidelines on Written Description published 21 December 1999). The Examiner further alleges that exemplification or identification of osteoprotegerin binding proteins is limited to the polypeptide of SEQ ID NO:7.

The basic inquiry related to written description is whether the Applicant was in possession of the claimed invention *Vas-Cath v. Mahurkar* 19 USPQ2d 1111, 1114 (Fed. Cir. 1991). Possession of the invention may be shown in a number of ways, such as by actual reduction to practice, or by "such descriptive means as words, structures , figures, diagrams, formulas, etc. that fully set forth the claimed invention" *Lockwood v. American Airlines* 41 USPQ2d 1961 (Fed. Cir. 1997).

Contrary to the Examiner's position, Applicant maintains that the claimed osteoprotegerin binding proteins are described in terms of both structural and functional properties, and not simply by

functional properties alone. For example, the structure of murine OPG bp DNA and protein is set forth in Figure 1 and SEQ ID NO:36 and the structure of human OPGbp DNA and protein is set forth in Figure 4 and SEQ ID NO:38.

However, Applicant's description of OPGbp DNA and protein are not limited to those sequences in Figures 1 and 4. On p. 9 of the specification, nucleic acids encoding OPGbp polypeptides are described as those which hybridize to the polypeptide coding regions as set forth in Figures 1 or 4 and remain hybridized under stringent conditions. Applicant maintains that the hybridizing nucleic acid molecules encode a genus of OPGbp polypeptides which are properly described.

It is also noted in the specification that the murine and human OPGbp amino acid sequences are about 87% identical to each other and are therefore highly conserved (see p. 32, lines 41-17). One skilled in the art could align the amino acid sequences of murine and human OPGbp and in doing so readily ascertain those regions of OPGbp which are structurally conserved. Thus the specification discloses those structural regions which are common to the genus of claimed OPG binding proteins.

The Examiner has alluded to SEQ ID NO:7 as being an example of the claimed OPG binding proteins. Applicant wishes to point out that SEQ ID NO:7 depicts a form of murine OPGbp from residues 107 to 316 inclusive (also referred to as murine OPGbp[107-316], see p. 34 of the specification). SEQ ID NO:7 depicts but one example of an OPGbp and, as noted above, other examples of OPG binding proteins are provided. The disclosure clearly contradicts the Examiner's allegation that the specification describes antibodies specific for a "single exemplary polypeptide". This is clearly not the case.

In view of the disclosure of OPGbp nucleic acid and amino acid sequences, it is submitted that the claimed OPG binding proteins were in possession of Applicant as of the filing date of the application. Without acquiescing to the rejection and solely for the purposes of advancing prosecution, Applicant has amended Claim 37 to recite an antibody or fragment thereof which binds an osteoprotegerin binding protein comprising the amino acid sequence as set forth in Figure 1 (SEQ ID NO:37) or Figure 4 (SEQ ID NO:39) or a fragment thereof. Withdrawal of the rejection is respectfully requested.

Claims 37-47 are rejected under 35 U.S.C. 112, second paragraph, as allegedly being indefinite.

Claim 37 is alleged to be indefinite as it is unclear whether the recited bone resorption need be inhibited within the composition or in any other particular reference system. In order to clarify the

invention, Applicant has amended Claim 37 to recite inhibition of bone resorption in a patient. Support for the amendment is found at p. 23, lines 6-9 of the specification.

Claims 40, 42, 45 and 46 are alleged to be indefinite because it is unclear whether they refer to an antibody or fragment or to compositions subgeneric to those in the claims from which they depend. Applicant has amended the claims to further clarify the invention.

Claim 42 is alleged to be indefinite because it recites insufficient process steps to prepare an antibody fragment according to Claim 41. Applicant has amended the claim to further clarify the invention.

Applicant acknowledges that the claims are patentable over the prior art of record. It is also acknowledged that U.S. Patent No. 6,046,048 and Emery et al. J. Biol. Chem. 273, 14363-14367 (1998) cited by the Examiner but not relied upon are considered pertinent to Applicant's disclosure.

CONCLUSION

Claims 37-58 are believed to be in condition for allowance and an early notice thereof is solicited.

Respectfully submitted,

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